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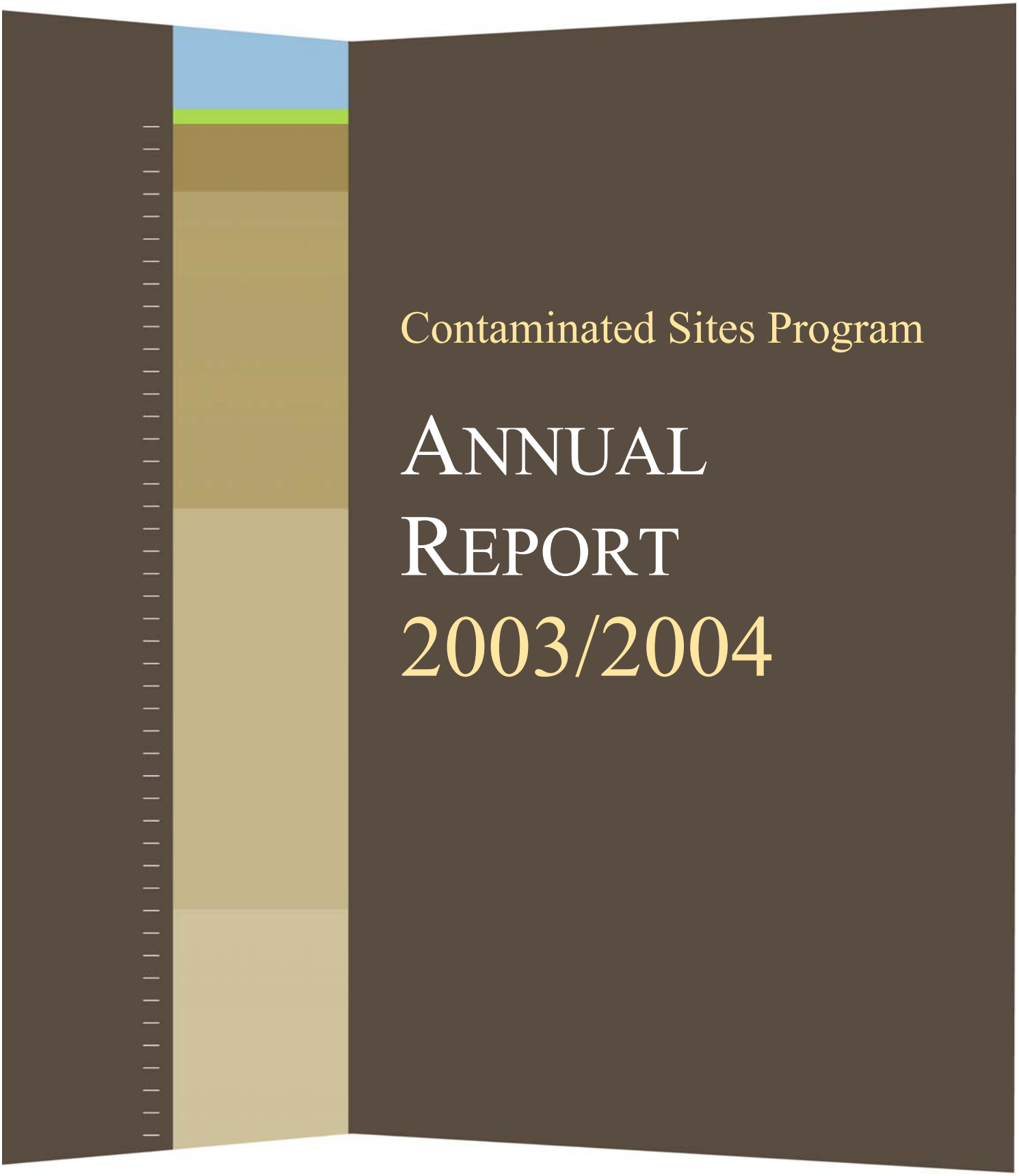

Contaminated Sites Program

Annual Report 2003/2004

Canada

CONTAMINATED SITES PROGRAM ANNUAL REPORT

2003/2004

Prepared by:

Environmental Health Assessment Services,
Safe Environments Programme

Our mission is to help the people of Canada
maintain and improve their health.
Health Canada

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1. Introduction

1.1 Context

In June 2003, Health Canada received financial support from the Treasury Board to participate in the Federal Contaminated Sites Accelerated Action Plan (FCSAAP), which is dedicated to identifying and assessing federal contaminated sites for remediation or risk management of those considered to be of high risk to human health or to the environment. As an expert support department, Health Canada's core activities in the FCSAAP include (see Annex 1): provision of advice and information, third-party peer review, preparation and delivery of guidance material, and training.

In order to evaluate its services, Health Canada decided in July 2003 to develop a Departmental Results-based Management and Accountability Framework (RMAF). The data collected for this purpose will be reported in April 2004 to the FCSAAP Secretariat and integrated into the interdepartmental RMAF.

1.2 Health Canada's Results-based Management and Accountability Framework

Health Canada's Results-based Management and Accountability Framework (RMAF) was used as a template to develop the 2003/2004 Contaminated Sites Program's Annual Plan. The RMAF identifies the following main activities and associated outcomes for Year One:

1) Setting Expectations and Plans for the Program:
   - *Closer alignment of expectations and resources; and*
   - *Improved program administration and communication*

2) Coordinating and Communicating Health Risk Information:
   - *Improved awareness/knowledge; and*
   - *Ensure accurate messaging of health risks*

3) Providing Advice/Peer Reviews:
   - *More informed stakeholders; and*
   - *Better decision-making.*

To measure the outcomes associated with the activities identified in section 2 of this report, the collection of outputs identified in the RMAF was initiated by National Capital Region (NCR) and provincial/territorial Regional staff of the Health Canada Contaminated Sites Program. The following people participated in the data collection task: Sanya Petrovic (BC/Yukon), Peter Choremiotis (Ont./Nunavut), Chantale Côté (Que.), Jacinthe David (NCR), Sylvie Coad (NCR), Julie Davidson (NCR), and Mark Richardson (NCR).

2.0 Activities

The fiscal year 2003/2004 was an excellent beginning for the Contaminated Sites Program. Despite late funding (received on June 18, 2003) and the necessity of implementing the program in parallel to the delivery of core services to stakeholders, Health Canada was able to fulfil its roles and responsibilities under the FCSAAP.

The outputs of the Department's Contaminated Sites Program in 2003/2004 are summarized in Tables 2.1 to 2.3.

2.1 Setting Expectations and Plans

Table 2.1

OUTPUT	SELECTION CRITERIA	SOURCE
Contaminated Sites Selection Criteria	• Development of a scientific method to assess and rank federal contaminated sites according to the health risks they pose (screening-level risk assessment guidance documents).	NCR
Priority Plans/Lists	• Development of a priority list of activities for the Contaminated Sites Program to fulfill Health Canada's obligations under the FCSAAP (Annex 3).	NCR
Performance Plan	• Health Canada's RMAF, feedback from the FCSAAP and custodial departments, and the fulfillment of commitments made in the first FCSAAP Treasury Board submission suggest that we have accomplished our roles and responsibilities for fiscal year 2003/2004. These commitments include: development of selection criteria for risk-ranking purposes and for environmental assessment under *CEEA*, and of supporting guidance documents; and staffing and expert advice on risk assessment. • Environment Canada (EC) and the Dept. of Fisheries and Oceans (DFO), both of which have a role similar to that of Health Canada under the FCSAAP, have consulted with us to see how Health Canada is running its program in terms of structure and services.	FCSAAP Treasury Board submission FCSAAP Secretariat Expert support departments (EC, DFO) This annual plan
Human Resources Plan	• Health Canada's initial plan for Year One was to staff 11 full-time equivalent (FTE) positions. Two positions were staffed as indeterminate in NCR for 2003/2004. Because of staffing delays and uncertainties about the 2004/2005 funding, the rest of the NCR positions were staffed by casual employees or through employment agencies.	NCR, Que., Ont. and BC

OUTPUT	SELECTION CRITERIA	SOURCE
Human Resources Plan (cont'd)	• Three of six Regions (Quebec, BC and Ontario) staffed term positions to March 31, 2004. However, uncertainty in the Regions regarding funding has affected the delivery of contaminated sites services. • When Health Canada receives funding for Years 2-5 of the FCSAAP, the Department will begin staffing up to 17 FTEs. The organizational chart will likely be different than the one presented in the 1st FCSAAP Treasury Board submission, since we are aiming to improve the program administration and communication to better reflect current needs. • Training and professional development of Regional and NCR staff: Contaminated Sites staff training: one-day seminar on human health risk assessment; three-day hands-on risk assessment (12 participants); and occupational health and safety training (8 participants). • Staff have also attended the annual Society for Risk Analysis meeting, and the Atlantic Contaminated Lands Conference. First aid and CPR training are planned for 2004/2005.	NCR, Que., Ont. and BC

2.2. Coordinating and Communicating Health Risk Information

Table 2.2

OUTPUT	SELECTION CRITERIA	SOURCE
Correspondence	• Briefings to the Director General (2), Assistant Deputy Minister (ADM) (5), and Minister (2), and a memorandum to the Health Impact Bureau Director (2) on the FCSAAP ADM Steering Committee meeting; information on the status of the Treasury Board submission; outcomes of interdepartmental committees meetings; information on Environment Canada's contaminated sites strategy. • Input to Question period #51 and Environmental Petition #50 and 50B; Access to Information request for warfare agents. • Ongoing routine voice- and E-mail correspondence and meetings with contaminated sites managers in custodial departments on human health risk assessment issues.	NCR
Guidelines and Guidance	• Development of the 'Federal Contaminated Sites Risk Assessment in Canada' guidance documents: Part I: Guidance on Human Health Screening-level Risk Assessment (SLRA); Part II: Health Canada Toxicological Reference Values; Part III: Guidance on Peer Review for Human Health Risk Assessment (HHRA); and Part IV: Spreadsheet Tool for Human Health SLRA. • Identification and compilation of data to update the Compendium of Canadian Human Exposure Factors for Risk Assessment (on-going). • Screening-level guidance document on assessing human health risks posed by volatile organic compound (VOC) contamination in soil and groundwater (on-going). • Guidance on conducting surveys of contaminants in country foods and backyard produce (on-going). • Guidance on managing the psychosocial consequences of contaminated site clean-up: A resource guide for environmental specialists (on-going). • A working draft on Air Quality Assessment Guidance. • Human Health Soil Quality Guidelines: Updates and/or development of guidelines for 21 substances initiated.	NCR

OUTPUT	SELECTION CRITERIA	SOURCE
Guidelines and Guidance (cont'd)	• Formal peer review of Canadian Council of Ministers of the Environment (CCME) soil documents on benzene, toluene, ethylbenzene, xylenes, and PAHs; and of the Revised CCME Protocol for the Derivation of Human Health. • Initiated, in association with the Geological Survey of Canada, the development of a GIS Database on background (natural) levels of metals in soils in Canada for use in screening of contaminants levels at sites.	NCR
Consultations	• Consultation took place in Ottawa (March 8-9, 2004) involving 10 consultants from across the country to discuss and revise Health Canada screening-level guidance documents on risk assessment. Participants were those consultants who performed SLRAs following the Department's guidance for the November FCSAAP competition. • Health Canada initiated Federal/Provincial/Territorial Liaison and Cooperation through the CCME Soil Quality Guideline Task Group; and participated in the Atlantic Contaminated Lands Conference and on the BC Federal/Provincial Toxic Chemicals Committee. • In February 2004, Contaminated Sites Program staff consulted with other Health Canada units (Environmental Contaminants Bureau; Environmental Health Science Bureau: Mutagenesis Section and the Biostatistics and Epidemiology Division) to develop and improve internal collaboration. • The Ontario Region had discussions with Environment Canada's Contaminated Sites Remediation Program and linked with the Environmental Services Division of Public Works and Government Services Canada (PWGSC). • Site visits to Indian and Northern Affairs Canada (INAC) mines in the Northwest Territories in summer 2003. • Improved consultations and cooperation with provincial, territorial, and municipal agencies through seminars on human health risk assessment for those other agencies at no cost. This effort was undertaken to reflect the federal government's interest in improved federal/provincial/ municipal cooperation.	NCR; BC/Yukon Region

OUTPUT	SELECTION CRITERIA	SOURCE
Meetings/ Presentations	• FCSAAP Regional Interdepartmental Working Group meetings were held in Quebec on January 22, 2004, in Vancouver on January 20, 2004, and in Halifax in November 2003. • One-day Human Health Risk Assessment Seminar for contaminated sites: training courses were held in six Regions (see Annex 4 for the details on attendees (285 participants)). • A presentation to the BC Federal/Provincial Toxic Chemicals Committee on November 18, 2003. • CCME Soil Quality Guidelines Task Group (three conference calls). • The Contaminated Sites Management Working Group met on more than 10 occasions last year. One presentation was given on Health Canada activities. • Northern Orphaned Abandoned Mines Initiative (7 conference calls). • Warfare Agent Disposal Working Group (4 meetings, ADM level). • The first national meeting of Health Canada Contaminated Sites Program staff was held in Ottawa (November 2003). The second meeting is scheduled for Vancouver in April 2004. • NCR Health Canada Contaminated Sites Program staff sit on the interdepartmental NCR Mercury Task Group, and also on the interdepartmental Lead Issues Working Group. The BC/Yukon and Quebec contaminated sites staff are represented on the Lead Issues Working Group. • Presentation to the Geological Survey of Canada on Health Canada's role and expert support activities under FCSAAP (February 9, 2004).	NCR; Quebec Region; BC/Yukon Region; Ontario Region
Communication Materials	• Preparation of summaries on Health Canada's three main activities under the FCSAAP: public outreach, risk assessment, environmental assessment; and one on Health Canada's Contaminated Sites Program, to be distributed to custodial departments' Regional staff.	NCR; Quebec Region; BC/Yukon Region

OUTPUT	SELECTION CRITERIA	SOURCE
Communication Materials (cont'd)	• Translation into French and revision of technical documents and presentations to reflect the terminology used in Quebec. • Distribution of SLRA and peer review checklist material to custodial departments and other interested parties (provincial, municipal, industries). • Free distribution of all slide decks for the training sessions.	NCR; Quebec Region; BC/Yukon Region
Web Site	• All Health Canada training materials, guidance documents, and key reports will be available through the Department's Web Site.	NCR

2.3 Providing Advice/Peer Reviews

Table 2.3

OUTPUT	SELECTION CRITERIA	SOURCE

Consultations	**Provincial/Territorial Regions**
	• Peer review of screening-level risk assessments (SLRAs) done by custodial departments for the FCSAAP, for different sites on several occasions, such as:
	  • Rogers Pass, Banff, Alta. (Parks Canada Agency);
	  • Valcartier, Que. (Dept. of National Defence);
	  • EC # 1 (Environment Canada);
	  • Rock Bay, BC (Transport Canada/Wilson Scientific);
	  • DEW Line Sites (Golder Associates); and
	  • Round Lake (Health Canada).
	• Health Canada also participated in consultations requested by custodial departments for their human health risk assessments of contaminated sites, including:
	  • Sector 103, Que. (Port of Montreal);
	  • New Osnaburgh, Ont. (Health Canada);
	  • Oshawa Harbour Lands, Ont. (Transport Canada);
	  • Great Duck Island, Ont. (Dept. of Fisheries and Oceans);
	  • London, Ont. (Dept. of National Defence);
	  • Moose Factory, Ont. (Health Canada/Public Works and Government Services Canada; and
	  • PEI site risk assessment.
	• There are also on-going consultations with:
	  • Dept. of Fisheries and Oceans/Coast Guard, on BC light stations;
	  • Transport Canada (Sandy Beach, Que.);
	  • Environment Canada (Magdalene Islands, Que.); and
	  • Dept. of National Defence (St. Pierre Lake, Que.).
	National Capital Region
	• 155 projects were reviewed under the FCSAAP funding process (Annex 3);
	• Detailed peer review of Dept. of National Defence (6) risk assessments;
	• Health Canada provided advice on human health risk assessment of Giant Mine for Indian and Northern Affairs Canada;
	• Health Canada also provided advice on Sydney Tar Ponds.
		NCR;
		Quebec Region;
		Ontario Region;
		BC/Yukon Region

OUTPUT	SELECTION CRITERIA	SOURCE

Consultations (cont'd)	**National Capital Region (cont'd)**
	• Detailed peer review of:
	  • Tundra Mine (Indian and Northern Affairs Canada);
	  • Kasabonika Lake (Health Canada);
	  • Lansdowne House (Health Canada);
	  • Weagamow Lake (Health Canada);
	  • Gander Airport (Transport Canada); and
	  • Newfoundland Dockyard.
		NCR;
		Quebec Region;
		Ontario Region;
		BC/Yukon Region

Training Workshops	• Delivery of six one-day seminars on human health risk assessment for federal contaminated sites held between January and March 2004 in Toronto, Vancouver, Edmonton, Montreal, Halifax and Ottawa. A total of 285 participants mainly from federal departments but also from provincial, municipal and private sectors attended (see Annex 4). • Development of a training session on peer review of risk assessments in BC/Yukon, as requested by custodial departments. Health Canada staff (12) attended a three day hands-on probabilistic risk assessment training course to provide consistent advice. • Request: The Dept. of National Defence has suggested that we deliver a one-day training session on public outreach.	NCR; Quebec Region; BC/Yukon Region
Information Briefings	• Presentation was made by the EHAS director to the Director General of the Safe Environments Programme (SEP) on our activities and peer review under the FCSAAP funding process.	NCR
Feedback on Requests for Proposals, Terms of Reference, and Projects	• Custodial departments' representatives demonstrated interest in the results of the on-going projects initiated by Health Canada under the FCSAAP, such as the updates of the Canada-wide Standards on Petroleum Hydrocarbons (CWS PHCs), the soil quality guidelines for various chemicals and health impacts associated with remediation technologies. • Custodial departments have shown interest in Health Canada staff providing further human health risk assessment guidance. • Expected reports (see details on Health Canada Contaminated Sites science initiatives in Annex 3), circulation and communication of reports.	NCR; Quebec Region; BC/Yukon Region; Ontario Region

OUTPUT	SELECTION CRITERIA	SOURCE
Specialized Committees	• See Table 2.1, Correspondence section, for details on committees on which we are sitting (4).	NCR
Evaluations of Environmental Health Impact Assessment	• Belledune investigation on potential transboundary impact • Greenwood (Dept. of National Defence) • Gloucester Landfill	NCR

3.0 Lessons Learned

3.1 Setting Expectations and Plans for the Program

- *Closer alignment of expectations and resources*
- *Improved program administration and communication*

The results of the first year of the Health Canada Contaminated Sites Program were excellent, particularly considering the numerous constraints that had to be taken into account -- for example:

- late funding (June 2003);
- difficulties for staff risk assessors in the Regions due to human resources issues and processes, and the uncertainty of funding in future years, making it difficult to attract candidates;
- delays in the second Treasury Board submission; and
- delays in contract processing and related administrative tasks, etc.

The Regional and NCR risk assessors had the responsibility of identifying the Regional key players they were to work with, and creating their own network. In some Regions, the FCSAAP Interdepartmental Regional Working Group was the vehicle for collaboration with other federal departments. In other Regions, such as Ontario, the working group took longer to be established; it was therefore harder for the Regional staff to link with the custodial departments. In Regional offices that remain unstaffed (Alberta, Manitoba), the contacts for and Health Canada input on projects were provided by NCR staff.

For site-specific advice, since not all the Regions were staffed and the workload varied among locations, collaboration was essential. The Regional and NCR offices all supported each other to deliver the committed services.

At NCR, most efforts were focused on developing national approaches and guidelines for human health risk assessment at federal sites, since consistency in this area is vital for comparing and

ranking sites in the FCSAAP process. Up to September 2003, there was no human health risk assessment guidance material available. However, by the end of the year, three guidance documents were completed, and two others are in progress.

Despite the various constraints, Health Canada has completed all the activities committed to in the first FCSAAP Treasury Board submission, and has even initiated some that were scheduled for next year.

After a few months of administering the program, and after receiving constructive comments and suggestions from the Regions, other federal departments, and Health Canada managers, we now have a better idea of how to structure our program and to better deliver our services in support of human health issues and challenges relating to custodial departments' contaminated sites. We have developed many tools that we aim to promote next spring for use by custodial departments at the national and regional levels.

At present, there is an ongoing challenge with regard to the human resources aspect of our work. Although additional funding for the clean-up of contaminated sites was announced in the 2004 Budget, it has taken longer than expected to prepare the second FCSAAP Treasury Board submission, thus delaying funding for the second year of the program and making it difficult for NCR and Regional managers to retain their staff. At the same time, NCR projects for the 2004/2005 fiscal year are on hold.

3.2 Coordinating and Communicating Health Risk Information

- *Improved awareness/knowledge*
- *Ensure accurate messaging of health risks*

Risk managers from custodial departments are aware that Health Canada has resumed its work in the area of risk assessment of contaminated sites. Health Canada's initiative to promote approaches on human health issues are serving to position the Department in a leadership role. We have improved awareness and knowledge of health risk information for custodial departments, and there is more work to be done. Health Canada is collaborating with specialists and universities to fill science gaps in risk assessment so that our guidance is not only accurate from a science perspective, but also innovative.

Health Canada aims to serve as a liaison with the provinces and territories on human health issues. The need exists, especially in the Quebec Region where the staff believe it is essential to initiate the harmonization of federal/provincial risk assessment guidance. In Quebec as in other provinces and territories, consultations and meetings will be necessary to facilitate the tasks of the Regional risk managers. One such task -- the translation of documents from English to

French -- has been difficult because of the highly technical content of these documents and the need for a consistent vocabulary for use by custodial departments and their contractors.

Over the past year some of our activities were oriented towards addressing implications of the *Canadian Environmental Assessment Act* (*CEAA*) for the remediation of contaminated lands in Canada. These activities included the development of a tool to help *CEAA* practitioners better understand the different soil remediation technologies and their respective human health impacts.

Finally, some Regions noted that Health Canada material was not being used for non-FCSAAP projects undertaken on federal lands. The Department still has an important role to play in ensuring accurate messaging and communication of health risks for all federal sites, including those outside the FCSAAP.

3.3 Providing Advice/Peer Reviews

- *More informed stakeholders*
- *Better decision making*

As outlined in the previous tables (2.1-2.3), Health Canada has supported the FCSAAP ADM Steering Committee and the custodial departments in their risk assessment and risk management plans and activities by providing site-specific advice, peer review, and human health scores. These support functions were carried out for sites under the FCSAAP as well for other federal sites. Through the sharing of our expertise and knowledge, risk managers have benefited substantially, as reflected in, for example, better-informed decision-making.

4. Concluding Remarks

Conditional to the continued funding expected by Health Canada for its Contaminated Sites Program under the FCSAAP, the Department is planning to fully implement this program in years 2 through 5 (i.e., from fiscal year 2004/2005 to 2007/2008). A strategy was established for fiscal year 2004/2005 to refine the delivery of our services by setting the expectations and plans for the program, better coordinating and communicating health risk information, and making our advice, guidance, and peer review services more accessible. Health Canada will also continue to monitor and assess its services through the application of both the Department's own RMAF and the FCSAAP RMAF to better fulfill its commitments.

List of Organizations and Abbreviations

- Agriculture and Agri-Food Canada (AAFC)
- British Columbia Institute of Technology (BCIT)
- Canada Customs and Revenue Agency (CCRA)
- Canada-Wide Standards on Petroleum Hydrocarbons (CWS PHCs)
- Canadian Council of Ministers of the Environment (CCME)
- *Canadian Environmental Assessment Act* (CEEA)
- Canadian Food Inspection Agency (CFIA)
- Correctional Services Canada (CSC)
- Defence Construction Canada (DCC)
- Department of Fisheries and Oceans (DFO)
- Department of National Defence (DND)
- Environment Canada (EC)
- Environmental Health Assessment Services (EHAS)
- Federal Contaminated Sites Accelerated Action Plan (FCSAAP)
- Federal-Provincial Toxic Chemicals Committee (FPTCC)
- Geological Survey of Canada (GSC)
- Indian and Northern Affairs Canada (INAC)
- Ministry of Water, Lands and Air Protection (British Columbia) (MWLA)
- National Capital Region (NCR)
- Natural Resources Canada (NRCan)
- Parks Canada Agency (PCA)
- Partnership in RBCA (risk-based corrective action) Implementation (PIRI)
- Public Works and Government Services Canada (PWGSC)
- Soil Quality Guidelines Task Group (SQGTG)
- Transport Canada (TC)
- Treasury Board (TB)

List of Terms and Abbreviations

- Human health risk assessment (HHRA)
- Human health risk assessment for biological contaminants (BIOHHRA)
- Human health risk assessment for radiological contaminants (RADHHRA)
- Human health site-specific risk assessment (HHSSRA)
- Reference exposure level (REL)
- Results-based Management and Accountability Framework (RMAF)
- Screening-level risk assessment (SLRA)
- Site-specific risk assessment (SSRA)
- Toxicological reference value (TRV)

Annex 1: Health Canada's Roles and Responsibilities under the Federal Contaminated Sites Accelerated Action Plan

Health Canada has a key support role and the responsibility to provide technical and expert advice to the ADM's Steering Committee and to custodial departments on human health risks relating to federal contaminated sites. The contaminated sites activities of the Office of Environmental Health Assessment Services (EHAS) are all in support of this function.

Health Canada received funding of $2.6M for its Contaminated Sites Program for 2003/2004 based on its 1st FCSAAP Treasury Board (TB) submission, and the Department's commitments outlined in this first submission have been delivered. For years 2-5 of the Accelerated Action Plan, Health Canada is seeking a total of $4M for the EHAS's Contaminated Sites Program. The Department's commitments to the Treasury Board under the FCSAAP include:

- Providing expert advice to the Secretariat to ensure the development and implementation of a scientifically defensible ranking system for project selection under the Accelerated Action Plan;

- Developing standardized, science-based approaches to assessing the human health and environmental risks associated with contaminated sites; and providing guidance materials and training to custodial departments, based on these approaches;

- Providing expert advice and guidance to custodial departments on identifying contractors, developing requests for proposals, and reviewing proposals for human health risk assessments;

- Undertaking expert third-party peer review of human health risk assessments of federal contaminated sites;

- Providing expert advice to custodial departments in the NCR and the Regions, concerning the best practices and management options for the remediation/risk-management of federal contaminated sites, so that risks to human health and the environment are eliminated or minimized;

- Providing risk communication advice, guidance material, and support on human health and/or environmental issues, to custodial departments so that they may address the concerns of affected communities, Aboriginal peoples, federal employees, contractors, and other stakeholders.

- Promoting regulatory compliance at federal sites and ensuring that site remediation/risk management decisions are consistent with federal environmental policies and management objectives;

- Serving as liaison between federal departments and provincial and territorial ministries of health and of environment, and between federal departments and Aboriginal peoples on health and environmental issues; and

- Supplying specialist or expert information or knowledge in order to conduct or contribute to environmental assessments pursuant to the *Canadian Environmental Assessment Act*.

Annex 2: List of Activities for 2003/2004 - Ongoing in 2004/2005

ACTIVITY	TASK
SOIL QUALITY GUIDELINES	Update supporting documentation on silver (Ag)
	Update supporting documentation on arsenic (As)
	Update supporting documentation on barium (Ba)
	Update supporting documentation on beryllium (Be)
	Update supporting documentation on cadmium (Cd)
	Update supporting documentation on chromium (Cr)
	Update supporting documentation on copper (Cu)
	Update supporting documentation on cyanide (CN)
	Update supporting documentation on mercury (Hg)
	Update supporting documentation on manganese (Mn)
	Update supporting documentation on nickel (Ni)
	Update supporting documentation on lead (Pb)
	Update supporting documentation on selenium (Se)
	Update supporting documentation on thallium (Tl)
	Update supporting documentation on vanadium (V)
	Update supporting documentation on zinc (Zn)
	Update supporting documentation on dichloromethane (methylene chloride)
	Update supporting documentation on vinyl chloride
	Update supporting documentation on tetrachloroethylene
	Develop new supporting documentation for trichloroethylene
	Develop new supporting documentation for ethylene/diethylene/propylene glycols

ACTIVITY	TASK
CONTAMINATED SITES PROGRAM ADMINISTRATION	Annual Health Canada RMAF report
	Annual Health Canada contribution to FCSAAP RMAF report
	Health Impacts Bureau (HIB) Code of Ethics
	Translation and publication of contaminated sites documents (guidance documents; federal/provincial/territorial database on source of health stats and surveillance activities; etc.)
	Briefings, general
	Health Canada Contaminated Sites Web Page
	Staffing
SCIENCE	Epidemiological perspectives on federal contaminated sites
	Preliminary compilation of soil data available from the Geological Survey of Canada
	Database on the bioavailability of arsenic in soil
	Research on bioavailability of metals as a function of soil particle size
	Evaluation of the use of amortization in carcinogen risk assessment
	Application of risk assessment methods from Atlantic, Quebec, Ontario, Alberta and BC to single hypothetical site
	Comparison of Canada-Wide Standards on Petroleum Hydrocarbons and Atlantic PIRI for assessing risks of petroleum hydrocarbons at a known contaminated site
	Literature review concerning the influence of electrical heating systems on the likelihood and level of indoor infiltration of volatile organic compounds (VOCs) in soil and groundwater
	Critical evaluation of the Canada-Wide Standard on Petroleum Hydrocarbons in soil
PUBLIC OUTREACH	Establish a contaminated sites working group on public outreach
TRAINING	Introductory seminar on human health risk assessment
	3-day NCR intensive hands-on training in human health risk assessment

ACTIVITY	TASK
TRAINING (CONT'D)	Occupational Health and Safety training for contaminated sites NCR and Regional staff
FEDERAL/PROVINCIAL/ TERRITORIAL LIAISON AND COOPERATION	Participate on the CCME Soil Quality Guidelines Task Group
	Review of revised CCME Protocol for the Derivation of Human and Environmental Soil Quality Guidelines
	Review of draft CCME soil quality guidelines for benzene, toluene, ethylbenzene and xylenes
	Review of draft CCME soil quality guidelines for uranium
	Review of draft CCME soil quality guidelines for PAHs
	Seminars and training
	Participate in the BC Federal-Provincial Toxic Chemicals Committee (FPTCC) meeting on risk assessment
	Participate in the Atlantic Contaminated Lands Conference
CEAA ADVICE	Health impacts of remedial technologies
	Guidance on air quality risk assessment (for *CEAA* projects)
	Guidance on assessing food-related issues
NON-FSCAAP SITE ADVICE AND ACTIVITIES	Review of Screening-Level Risk Assessments (please refer to Table 2.2, Correspondence section)
	Participate on Northern Orphaned and Abandoned Mines Initiative
	Participate on the Warfare Agent Disposal Working Group
	CEAA advice (Belledune, Gloucester Landfill, etc).
RISK ASSESSMENT GUIDANCE	Federal Contaminated Site Risk Assessment in Canada, Part I: Guidance on Human Health Screening-Level Risk Assessment (SLRA)
	Federal Contaminated Site Risk Assessment in Canada, Part II: Health Canada Toxicological Reference Values (TRVs)
	Federal Contaminated Site Risk Assessment in Canada, Part III: Guidance on Peer Review of Human Health Risk Assessments

ACTIVITY	TASK
RISK ASSESSMENT GUIDANCE (CONT'D)	Federal Contaminated Site Risk Assessment in Canada, Part IV: Spreadsheet Tool for Human Health Screening Level Risk Assessment (SLRA) (in preparation)
	Federal Contaminated Site Risk Assessment in Canada, Part V: Guidance on Complex Human Health Site Specific Risk Assessment (HHSSRA) (in preparation)
	Federal Contaminated Site Risk Assessment in Canada, Part VI: Guidance on Human Health Risk Assessment for Radiological Contaminants (RADHHRA) (in preparation)
	Federal Contaminated Site Risk Assessment in Canada, Part VII: Guidance on Human Health Risk Assessment for Biological Contaminants (BIOHHRA) (in preparation)
	Federal Contaminated Site Risk Assessment in Canada, Part VIII: Compendium of Canadian Human Exposure Factors for Risk Assessment, 2nd edition (in preparation)
	Screening level guidance on assessing human health risks posed by volatile organic compound (VOC) contamination in soil and groundwater (in preparation)
	Guidance on conducting surveys of contaminants in country foods and backyard produce (in preparation)
	Develop a Psychosocial Resource Guide on psycho-social analysis of contaminated sites issues
INTERNAL HEALTH CANADA ACTIVITIES	Health Canada NCR Mercury Task Group and NCR Lead Issues Working Group
	Health Canada Pacific Region Lead Working Group

Annex 3: List of Projects Reviewed under the FCSAAP in 2003/2004

Health Canada Technical Review Committee 2003/2004 - Contaminated Sites (April 1, 2003 to January 30, 2004)

Table 1: First Year

1st Year-Work Package Proposal 2003	Department	Province/ Territory	Contaminated Site
	Canada Customs and Revenue Agency	Alaska	Pleasant Camp
	Correctional Service Canada	(federal)	Correctional Services Canada 001
	Dept. of Fisheries and Oceans	BC	Victoria Coast Guard Base
		Ont.	SCH Belleville
		Que.	Station du phare du Rocher aux Oiseaux
		Que.	Station du phare de l'île Brion
		Que.	Station de télécommunication de la Pointe Heath
		Que.	Station du phare du Cap de la Tête-de-Chien
		Que.	Station du phare de Cap au Saumon
	Dept. of National Defence	Nfld./Lab.	Survival Tank Farm, Goose Bay
		Nfld./Lab.	Upper Tank Farm, Goose Bay
		Nfld./Lab.	South Escarpment Landfills, Labrador
		Nfld./Lab.	Saglek, Labrador
		NS	Halifax Dockyard Annex
		NS	CFAS Bedford Dredge
		NS	14 Wing Greenwood Aggregate
		NS	CFS St. John's Aggregate
		Que.	Valcartier TCE
		Ont.	CSFU Ottawa Uplands Tank Farm

1st Year-Work Package Proposal 2003	Department	Province/ Territory	Contaminated Site
	Dept. of National Defence (cont'd)	Ont.	Fort Frontenac Water Lots, Kingston
		Ont.	Building B24 Vimy
		Alta.	Cold Lake
		Alta.	Suffield EPG Aggregate
		Alta.	Harvey Barracks Aggregate
		BC	Colwood Aggregate
		Nunavut	FOX-M LRR
		Nunavut	PIN-4
		Nunavut	PIN-3 LRR
		Nunavut	FOX-5 SRR
		Nunavut	CAM-4 SRR
		Nunavut	CAM-2 SRR
	Environment Canada	BC	EC- 01
	Health Canada	Ont.	Moose Factory
		Ont.	Weagamow Lake
	Indian and Northern Affairs Canada	BC	BC-01 Bella Bella
		Alta.	AB-01 Goodfish Lake
		Man.	MB-01 Mathias Colomb
		Man.	MB-02 Bunibonibee
		Man.	MB-03 Barren Land
		Man.	MB-04 God's Lake
		Ont.	ON-01 Cutler Acid Plant
		Ont.	ON-02 Attawapiskat
		Ont.	ON-03 Kingfisher
		Ont.	ON-04 Muskrat Dam
		Ont.	ON-05 Cat Lake
		Ont.	ON-06 North Caribou Lake

1st Year-Work Package Proposal 2003	Department	Province/ Territory	Contaminated Site
	Indian and Northern Affairs Canada (cont'd)	NWT	FOX-A Bray Island
		NWT	Silver Bear Mines
		NWT	Tundra Mine
		NWT	Discovery Mine
		NWT	Colomac Mine
		NWT	Giant Mine
		Yukon	Clinton Creek Mine
		Yukon	Mount Nansen Mine
		Yukon	Faro Mine
		Yukon	United Keno Hill Mine
		Nunavut	Sarcpa Lake
		Nunavut	Radio Island
		Nunavut	Cape Christian
		Nunavut	Ekalugad Fjord
		Nunavut	Port Radium Mine
		Nunavut	Resolution Island
	Parks Canada Agency	NS	PCA-03 Marrach Stream
		Alta.	PCA-01 Banff National Park
		BC	PCA-02 Glacier National Park
	Transport Canada	Nfld./Lab.	Goose Bay Airport

Note: For more details on the 2nd-year review, refer to "Interdepartmental Data Exchange Applications" (IDEA), an Intranet-based document exchange system for federal ministries (includes, e.g., additional contaminated sites for the Dept. of Fisheries and Oceans).

Table 2: Second Year

2nd-Year SLRA/SSRA 2003	Department	Province/ Territory	Contaminated Site
	Dept. of Fisheries and Oceans	Que.	Cap de la Tête-de-Chien
		Que.	Cap au Saumon
		Que.	Rocher aux Oiseaux
		Que.	Île Brion
		Que.	Pointe de l'Ouest
		Que.	Pointe Heath
		Ont.	Myers Pier Park, Belleville, plus a few more DFO sites were evaluated
		BC	Victoria Coast Guard Base
		BC	Triple Island
	Dept. of National Defence	Nfld./Lab.	Shea Heights
		Nfld./Lab.	Saglek
		Nfld./Lab.	Survival Tank Farm
		Nfld./Lab.	Upper Tank Farm, Goose Bay
		NS	Bedford Dredge Material
		NS	Dockyard Annex
		NS	CFB Halifax, French Cable Wharf
		NB	14 Wing Greenwood
		Que.	Valcartier
		Alta.	Suffield EPG Aggregate
		Alta.	Harvey Barracks Aggregate
		BC	Colwood Facility
		Nunavut	PIN-4, Byron Bay
		Nunavut	CAM-3 Shepherd Bay
		Nunavut	CAM-1 Jenny Lind Island

2nd-Year SLRA/SSRA 2003	Department	Province/ Territory	Contaminated Site
	Dept. of National Defence (cont'd)	Nunavut	FOX-M
		Nunavut	CAM-4, Pelly Bay
		Nunavut	CAM-5
		Nunavut	PIN-3
		Nunavut	CAM-2 Gladman Point
		Nunavut	DYE-M
	Environment Canada	BC	EC-01
	Health Canada	Ont.	Weagamow Lake
		Ont.	Lansdowne House
		Ont.	Kasabonika Lake
	Indian and Northern Affairs Canada	Man.	Barren Lands
		Man.	Barren Lands
		NWT	Giant Mine
		NWT	Silver Bear Mines
		NWT	Discovery Mine
		NWT	Colomac Mine
		NWT	BAR-D Atkinson Point
		NWT	Port Radium Mine
		NWT	Axe Point
		NWT	Contact Lake Mine
		NWT	Tundra Mine
		Yukon	Clinton Creek Mine
		Yukon	Mount Nansen Mine
		Yukon	United Keno Hill Mine
		Yukon	Faro Mine
		Nunavut	Cape Christian
		Nunavut	Padloping Island
		Nunavut	CAM-F Sarcpa Lake
		Nunavut	FOX-A Bray Island

2nd-Year SLRA/SSRA 2003	Department	Province/ Territory	Contaminated Site
	Indian and Northern Affairs Canada (cont'd)	Nunavut	FOX-C Ekalugda Fjord
		Nunavut	Bear Island
		Nunavut	PIN-B Clifton Point
		Nunavut	Radio Island
		Nunavut	Resolution Island
		Nunavut	CAM-D Simpson Lake
	Parks Canada Agency	BC	Maintenance Compound, Glacier National Park
		Alta.	Banff National Park
		Que.	Canal Lachine- sites 3.1, 13.3, 13.8, 14.1
	Transport Canada	BC	Rock Bay
		Nfld./Lab.	Gander Site 59
		Nfld./Lab.	Newfoundland Dockyard

Annex 4: List of Participants in Health Canada's One-day Seminar on Risk Assessment at Federal Contaminated Sites

Seminar Location	Total No. of Participants	Participating Organizations (Number of Participants)
ALBERTA	46	Alberta Environment (14)
		Consultants (5)
		Dept. of National Defence (2)
		Environment Canada (4)
		Health Canada (10)
		Indian and Northern Affairs Canada (7)
		Parks Canada Agency (1)
		Public Works and Government Services Canada (3)
HALIFAX	70	Consultants (4)
		Defence Construction Canada (3)
		Dept. of Fisheries and Oceans (4)
		Dept. of National Defence (5)
		Environment Canada (15)
		Health Canada (1)
		New Brunswick Environment (1)
		Newfoundland/Labrador Environment (1)
		Nova Scotia Environment (21)
		Prince Edward Island Environment (2)
		Public Works and Government Services Canada (5)
		Parks Canada Agency (2)
		Transport Canada (6)

Seminar Location	Total No. of Participants	Participating Organizations (Number of Participants)
VANCOUVER	54	British Columbia Institute of Technology (1)
		Consultants (6)
		Dept. of Fisheries and Oceans (4)
		Dept. of National Defence (3)
		Environment Canada (12)
		Fraser Health (4)
		Government of Yukon (1)
		Health Canada (8)
		Indian and Northern Affairs Canada (4)
		BC Ministry of Water, Lands and Air Protection (4)
		Public Works and Government Services Canada (3)
		RCMP (1)
		Transport Canada (2)
		University of British Columbia (1)
MONTREAL	50	Correctional Services Canada (3)
		Dept. of Fisheries and Oceans (3)
		Dept. of National Defence (5)
		Environment Canada (9)
		Health Canada (17)
		Indian and Northern Affairs Canada (1)
		Canadian Food Inspection Agency (1)
		Parks Canada Agency (5)
		Transport Canada (2)

Seminar Location	Total No. of Participants	Participating Organizations (Number of Participants)
MONTREAL (CONT'D)		Public Works and Government Services Canada (2)
		University of Montreal (1)
		University of Quebec at Montreal (1)
TORONTO	25	Canadian Environmental Assessment Agency (2)
		Defence Construction Canada (1)
		Dept. of Fisheries and Oceans (3)
		Dept. of National Defence (4)
		Environment Canada (1)
		Health Canada (3)
		Indian and Northern Affairs Canada (3)
		Public Works and Government Services Canada (6)
		Transport Canada (2)
OTTAWA	42	Agriculture and Agri-Food Canada (3)
		Canada Customs and Revenue Agency (2)
		Defence Construction Canada (10)
		Dept. of Fisheries and Oceans (2)
		Dept. of National Defence (8)
		Environment Canada (3)
		Health Canada (7)
		Indian and Northern Affairs Canada (1)
		Natural Resources Canada (1)
		Parks Canada Agency (1)
		Public Works and Government Services Canada (4)
TOTAL	287	

Annex 5: List of Science Initiatives Proposed for 2004/2005

Health Canada's Contaminated Sites Program activities are in direct support of the Department's 'Expert Support' role in the Federal Contaminated Sites Accelerated Action Plan (FCSAAP). All activities must address and deliver on the goals outlined in the FCSAAP Treasury Board (TB) submission, accepted and adopted by the TB on June 18, 2003.

Planned Activities: Description and Rationale

- *Investigating metal fate, transport, and bioavailability*.

- *Determining a dermal slope factor for polycyclic aromatic hydrocarbons (PAHs):* The dermal route is a significant pathway of exposure to PAHs, and such PAH exposure can cause skin cancer; however, only oral and inhalation slope factors have ever been derived.

- *Developing site-specific risk assessment guidance for chemically contaminated soils* (Part 1 is in progress; Part 2 will see completion of the guidance document by September 2004).

- *Developing site-specific risk assessment guidance for radiologically contaminated soils.*

- *Developing site-specific risk assessment guidance for biologically-contaminated soils.*

- *Providing training in risk assessment of contaminated sites for site managers in other government departments.*

- *Critically reviewing mercury toxicology and development of a proposed regulatory reference exposure level (REL)* (Phase 2; Phase 1 is in progress): Numerous federal sites are contaminated with mercury and the only Canadian REL that is available relates to occupational exposure, not general public exposure.

- *Compiling a database on all published and 'grey' literature data concerning the oral bioavailability from contaminated soil of nickel, cadmium, lead, chromium, and any and all other contaminates that have been tested:* Bioavailability data are required for more accurate site-specific assessments of exposure and risk from contaminated soils. There is at present no single database that houses all published data and information on this topic.

- *Creating a publicly-accessible, Web-based GIS database on background (natural) levels of metals in Canadian soils (Part 2):* Work on this activity began in fiscal year 2003/2004, and

will continue towards making data more publicly accessible so that it can be incorporated into all risk assessments of federal contaminated sites.

- *Quantifying national and regional background (natural) concentrations of metals in soils across Canada, for inclusion in supporting documents for human health-based soil quality guidelines:* Soil quality guidelines cannot be set below naturally-occurring levels, and thus background levels must be quantified. The Geological Survey of Canada (GSC) is the foremost expert federal department with respect to the levels of metals occurring naturally in Canadian soils. The GSC will be commissioned to define national and regional background levels (as means, maximums, or percentiles) of arsenic, lead, nickel, cadmium, chromium, and a variety of other metals to ensure that available data are not misinterpreted or misrepresented.

- *Mapping contaminated sites within close proximity to federal contaminated sites:* Risks posed by contaminated sites are, in part, related to the number of Canadians potentially exposed; the maps provided by Statistics Canada allow us to identify those sites with the largest populations living nearby. These data will be used for priority ranking for assessment and remediation.

- *Re-evaluating lead (Pb) exposure and toxicity specifically as it relates to contaminated soils, and developing a human health-based management strategy for manned light stations:* The single largest concern at manned light stations located on the Pacific and Atlantic coasts is lead contamination from the use of lead-based paints. Health Canada will support the re-evaluation of such lead exposure and toxicity, and also a lead-contaminated soil management plan that can be applied to other lead-contaminated sites in Canada.

- *Compiling published and 'grey' literature on background (natural) levels of contaminants in Canadian soils:* The Geological Survey of Canada has data only from its own national surveys and those of the provincial ministries of natural resources. However, there are many additional data sources that are not included in GSC data holdings. These include Agriculture Canada, provincial ministries of agriculture, as well as scientific and 'grey' literature sources.

- *Continuing work on the bioavailability of metals from soils (as bioavailability is influenced by assay methods and soil particle size), towards development of "Standard Methods for Conducting Assays of Contaminant Bioaccessibility at Federal Contaminated Sites in Canada"* (Part 1 of this project is in progress; Part 2 is planned for fiscal year 2004/2005): Adjustment for site-specific oral bioavailability will increase the accuracy and validity of contaminated site risk assessment. However, no Canadian agency has yet defined standard

methods for measuring this variable. Current methods outlined in the available literature are inadequate for accurately quantifying this parameter.

- *Developing a standard method for quantifying the bioaccessibility of contaminants adsorbed on inhaled soil particles in simulated lung fluid:* Wind erosion, agricultural activities, vehicular traffic on unpaved contaminated surfaces, etc., result in significant air-borne loads of contaminated soil particles, the inhalation of which can lead to significant exposure. At present there are no means of ascertaining the likely respiratory adsorption of contaminants on inhaled soil particles.

- *Developing a standard method to collect soil particles of ≤ 10 µm in size:* The primary soil particle size fraction that is ingested is ≤ 10 µm. Current soil sampling methods investigate only bulk samples of soil particles generally of ≤ 180 µm. A standard, easy-to –perform method of collecting the ≤ 10 µm size fraction is required both for chemical analysis (contaminant concentration) and for assays of bioaccessibility. Initial development of an experimental method is being undertaken by Royal Roads University as part of a Memorandum of Understanding relating to bioavailability.

- *Investigating the effects of mixtures of substances and determining whether these substances show additive, synergistic or antagonistic properties:* Contaminated sites present mixtures of substances, not single chemical or single element exposures. One of the questions most frequently posed to Health Canada is how to treat mixtures within a contaminated site risk assessment. Research is needed to provide the necessary basis for sound risk assessment advice to other government departments.

- *Re-evaluating the toxicity of PCBs, with the aim of revising the Canadian toxicological reference value (TRV) for these substances:* The Canadian evaluation of PCBs is greatly out of date (1986) and fails to address potential carcinogenic effects and the different congeners (co-planar or other). Revision of this TRV is of interest in relation to contaminated sites as well as to potentially contaminated foods and other areas of contamination addressed by the Healthy Environments and Consumer Safety Branch of Health Canada. The Office of Environmental Health Assessment Services will lead the review by initiating a critical review of toxicological studies of PCBs.

- *Carrying out statistical analyses of recent food consumption survey data. Health Canada will be releasing the 2nd edition of the "Compendium of Canadian Human Exposure Factors for Risk Assessment":* The first edition is currently the primary source of information on human receptor characteristics for risk assessments of Canadian contaminated sites. Data on recent (1990-2002) food consumption surveys are held by the food inspection program, but

adequate funding is lacking for proper statistical evaluation of these data. The EHAS will provide the necessary funds so that the 2nd edition of the Compendium can be updated.

- *Evaluating the health risks associated with different contaminated soil remedial technologies* (Part 2; Part 1 is in progress): To facilitate the review of remedial plans, assessments of the relative risks of different remedial technologies are required.

- *Developing environmental fate models to evaluate groundwater and air dispersion of chemicals released from contaminated sites and during remedial activities:* Standard Canadian models for use in risk assessment and during the evaluation of remedial plans under the *Canadian Environmental Assessment Act* (CEEA) do not exist at present. Health Canada requires the identification and development of these models to support its role under the FCSAAP and to evaluate remedial plans under *CEAA*.

- *Supporting (planned) student development, either through summer student employment programs, or staffing by contractual arrangements.*

- *Providing assistance to develop human health-based soil quality guidelines for contaminants of mutual interest and concern to Health Canada and the CCME Soil Quality Guidelines Task Group (SQGTG):* The Department is a member of the SQGTG and plans to provide this assistance to support the Task Group's activities and to ensure Health Canada's influence at the federal/provincial/territorial table.

- *Preparing scientific supporting documents for human health-based soil quality guidelines for contaminants of specific concern to federal departments:* These guidelines are needed for a variety of contaminants of specific interest to federal departments, but which lie outside the interests of other CCME SQGTG members.

- *Translating all contaminated sites guidance documents and resource materials being prepared by Health Canada under the FCSAAP before being formally published by the Department.*